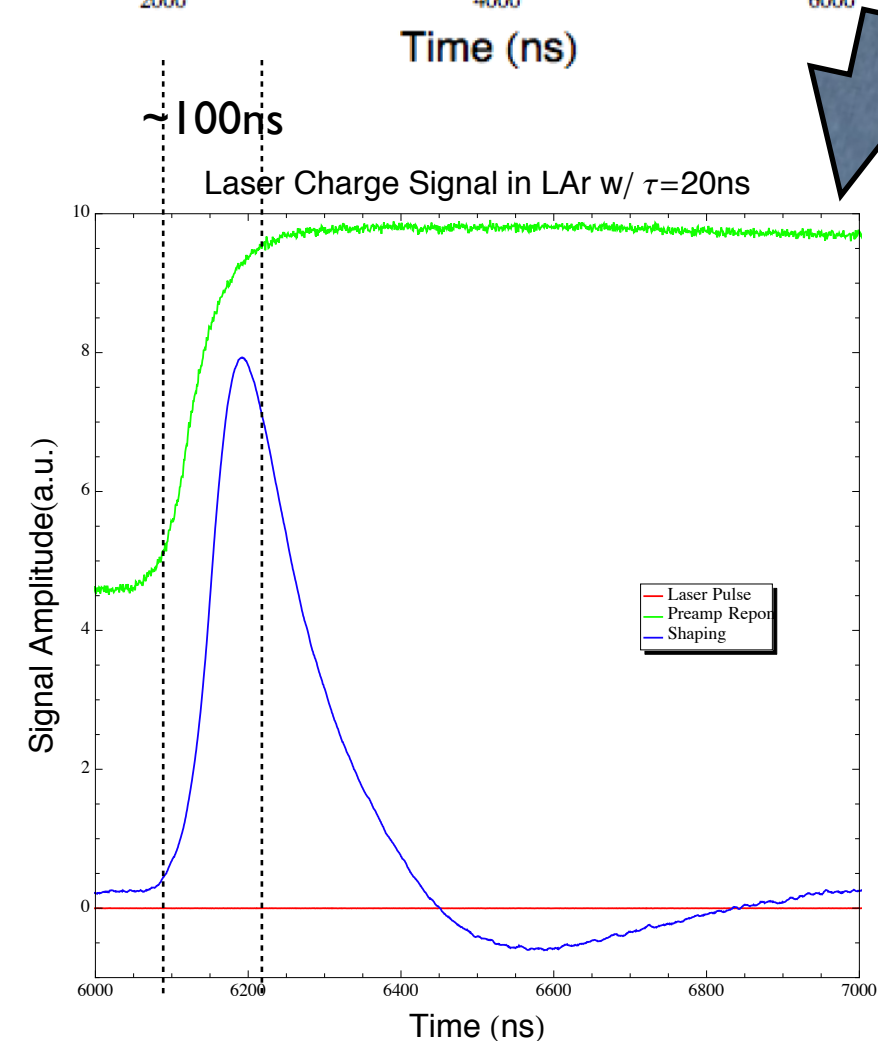
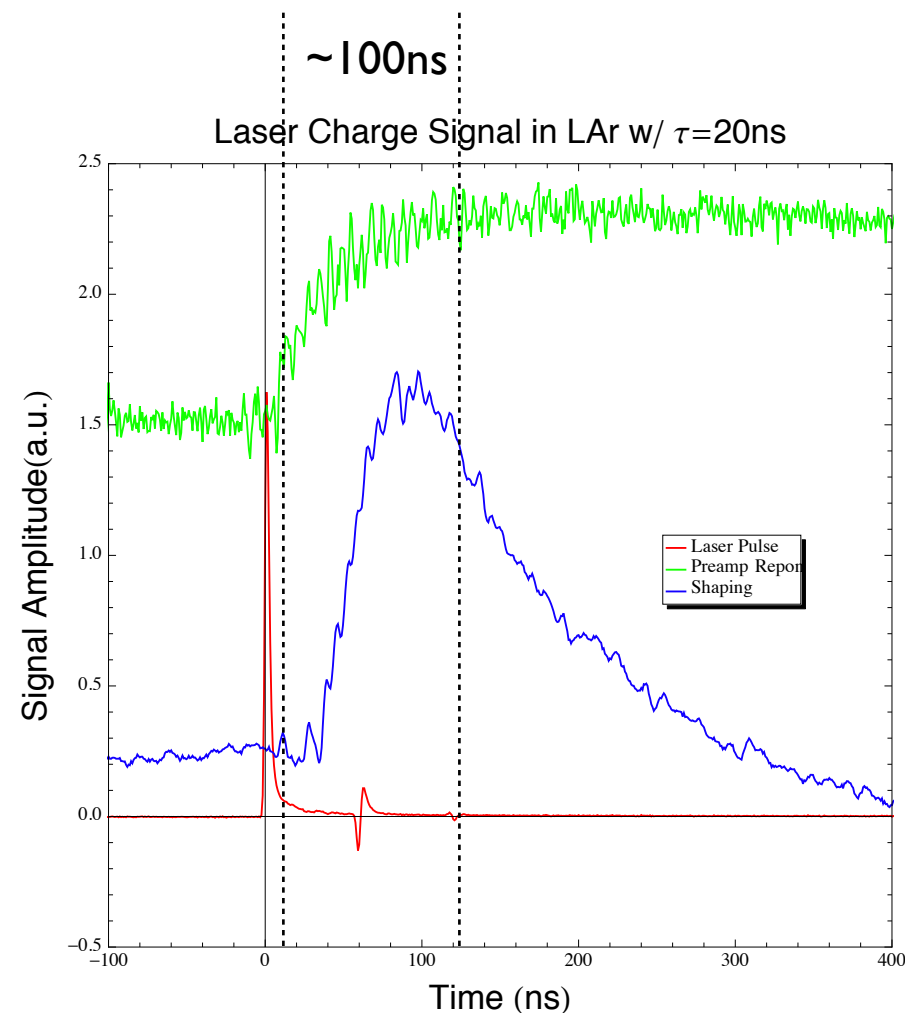
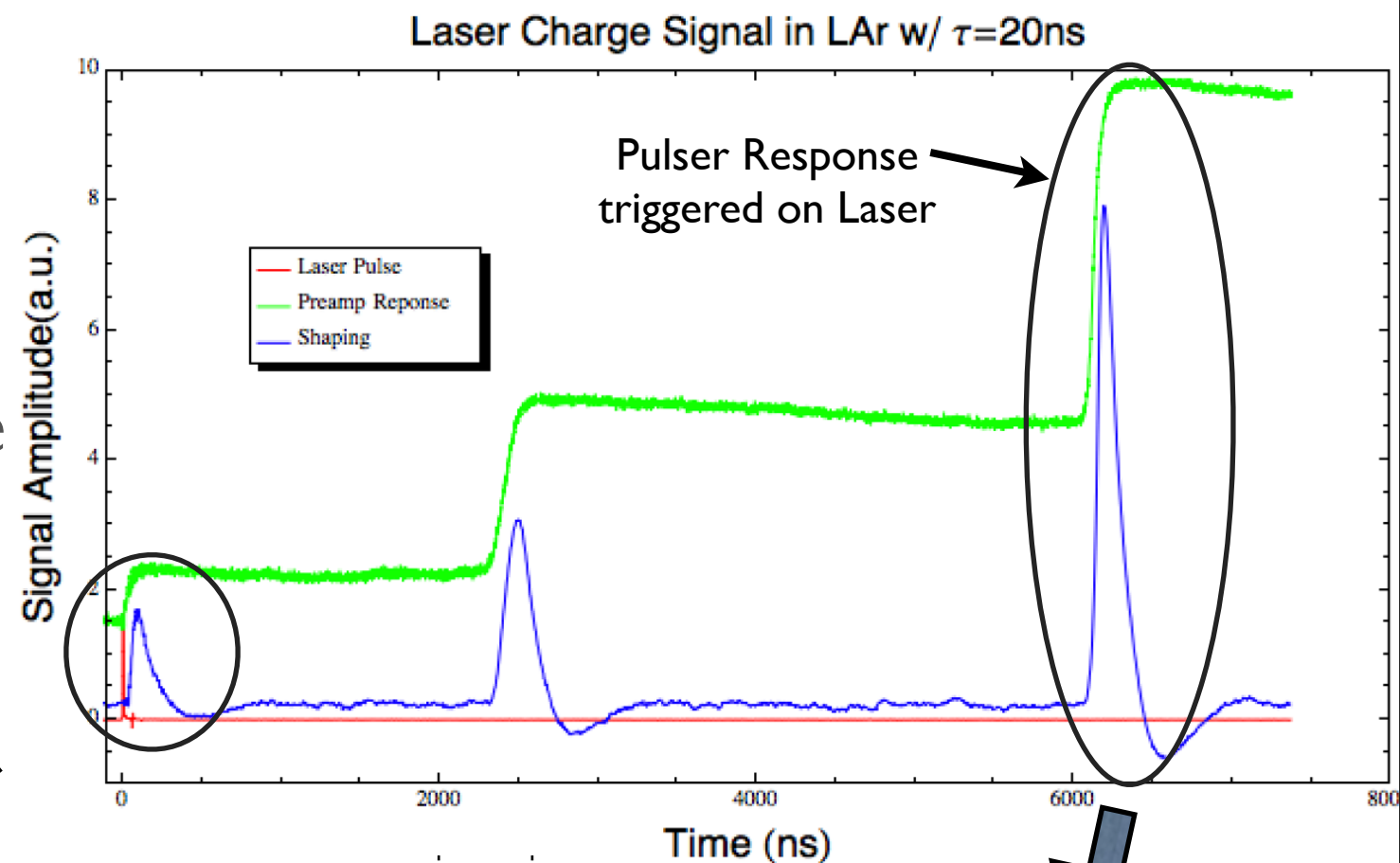


# First Peak Study

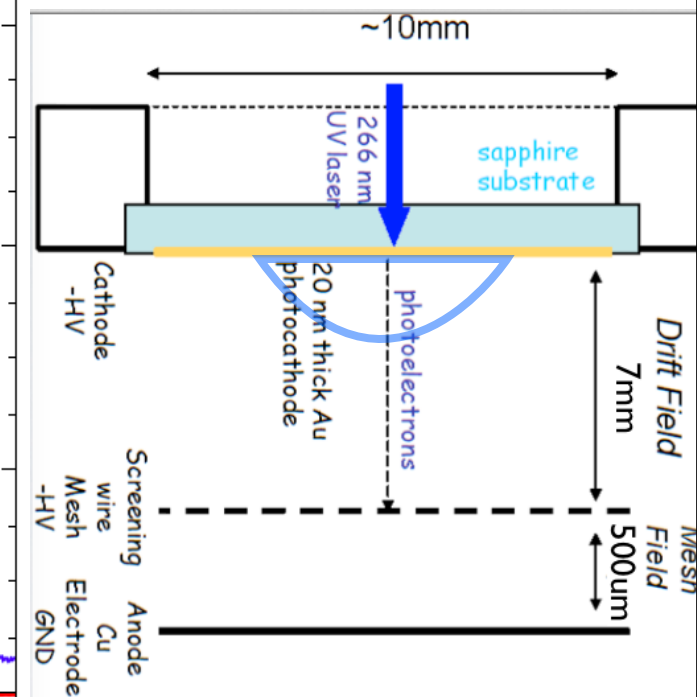
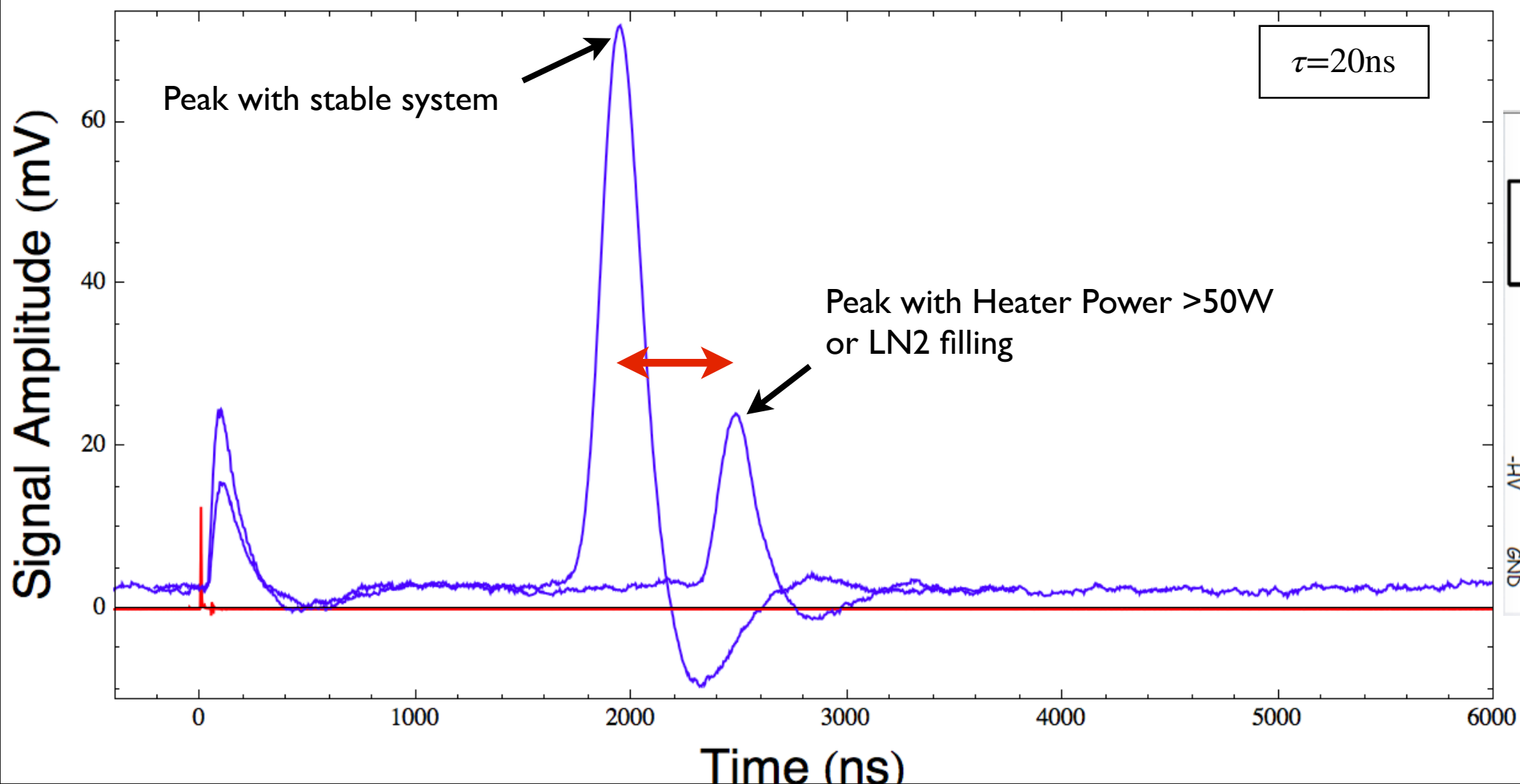
1. The first peak starts immediately with the laser pulse shape.
2. The signal is unipolar.
3. Its amplitude is proportional to the laser power.
4. The rise time is very close to the pulser response



# Signal Peak Shifting Study

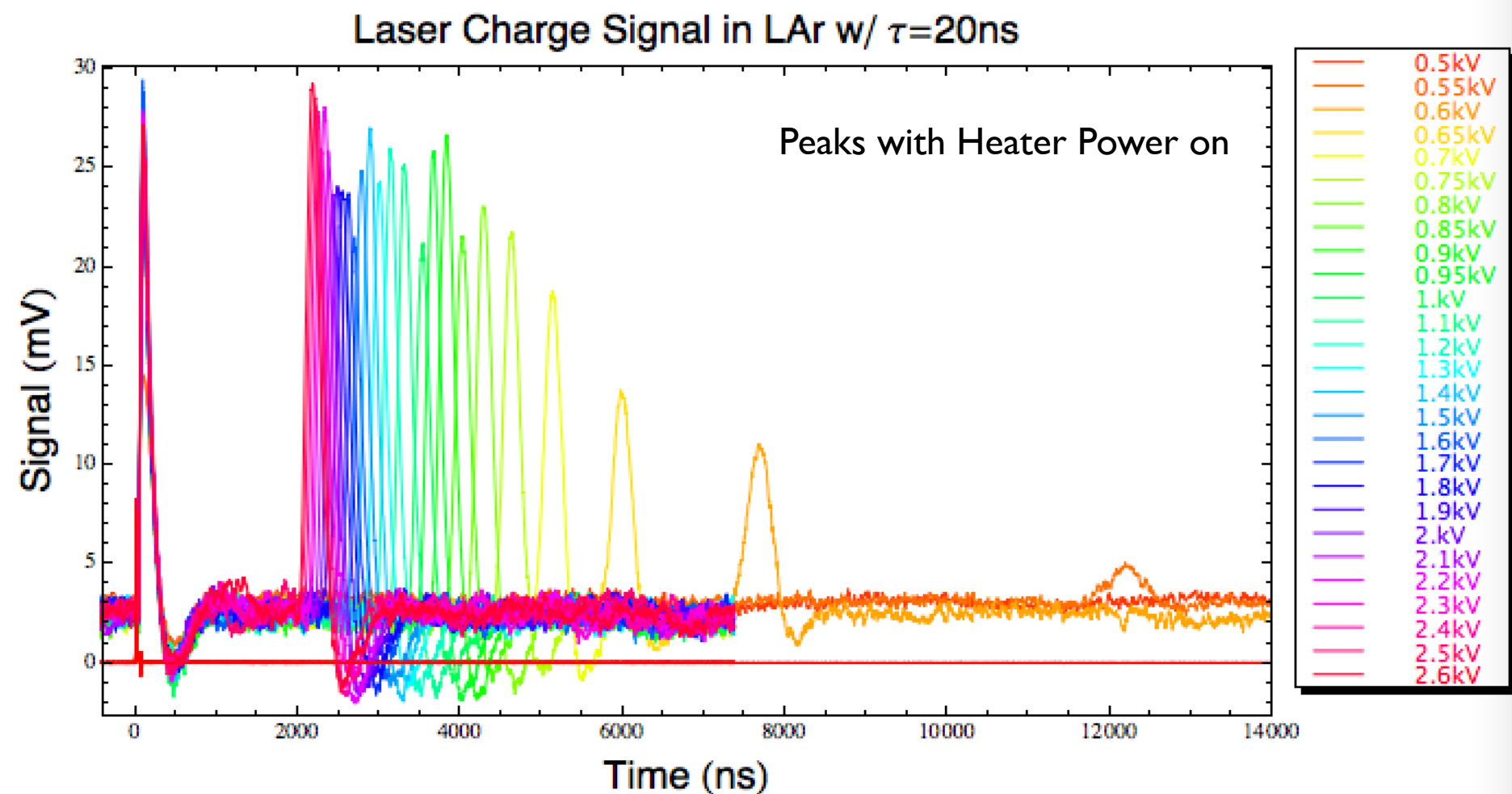
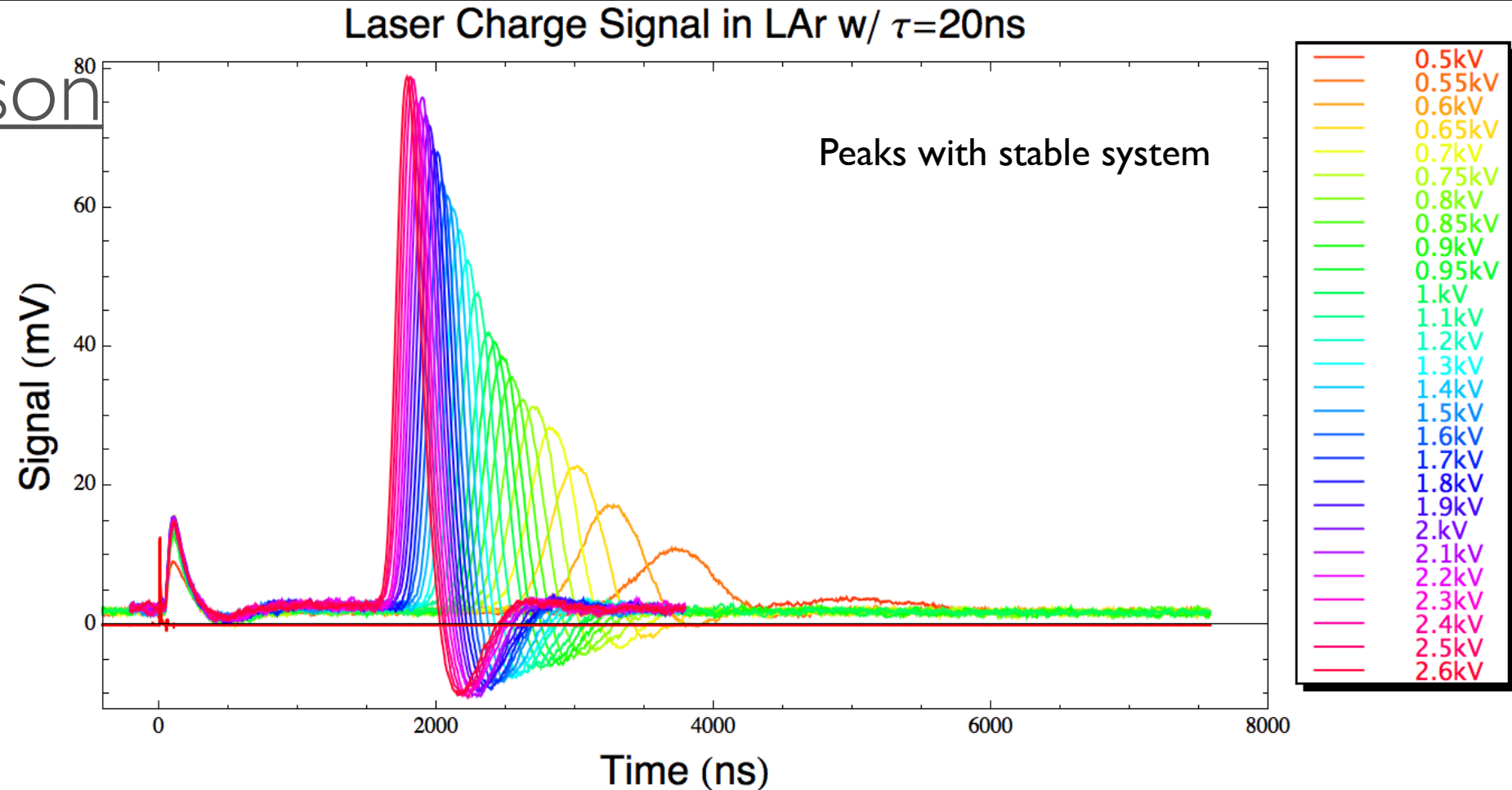
1. The charge signal peak shifting behavior has been observed during LN2 filling.
2. Turning on the heater immersed in the LAr has the same peak shifting effect.
3. The signal shifting is repeatable.
4. It is most likely caused by the Ar bubble generated on the photocathode surface due to the heating by the highly focused laser beam.

## Electron Signal Shifting Demo



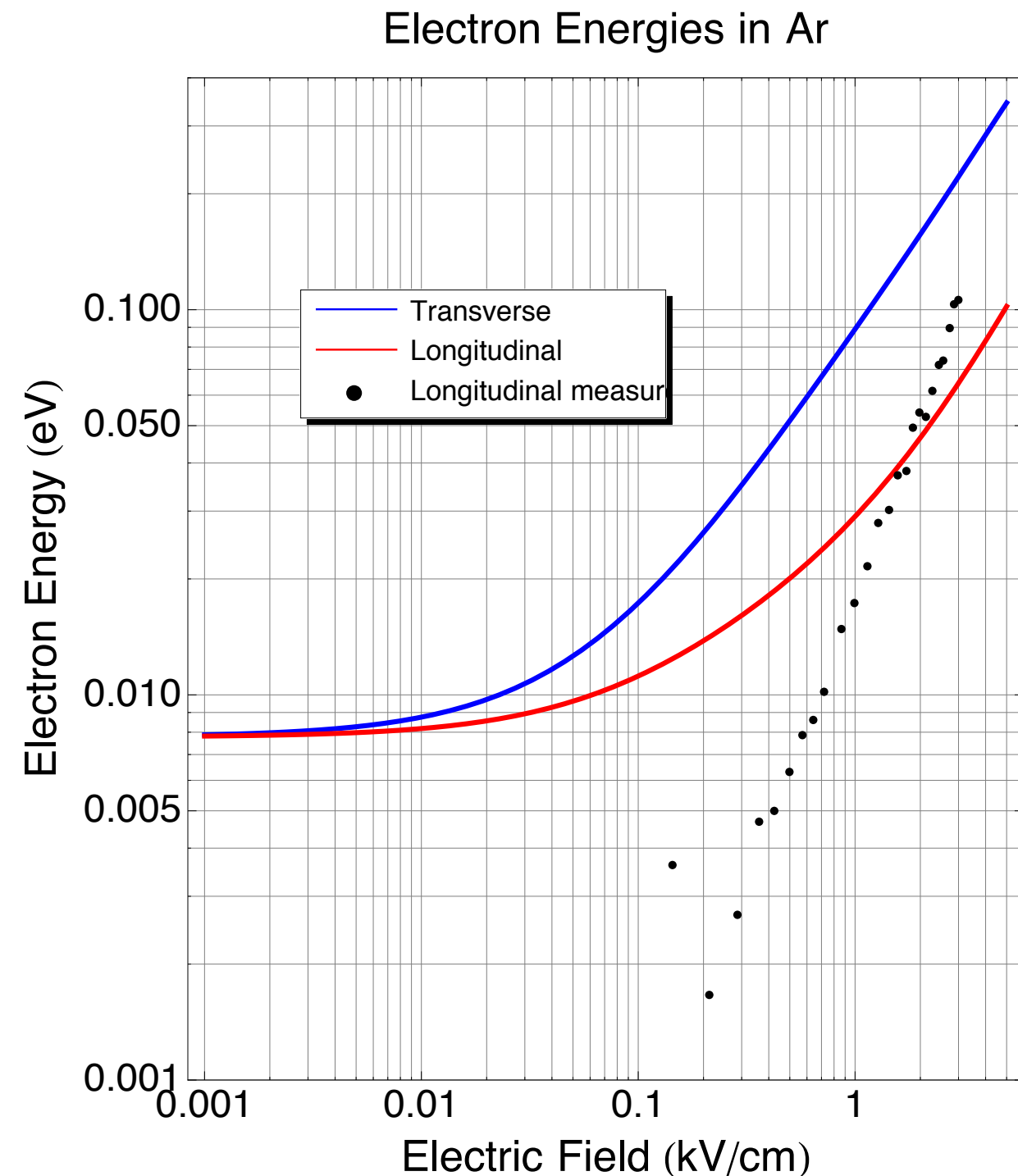
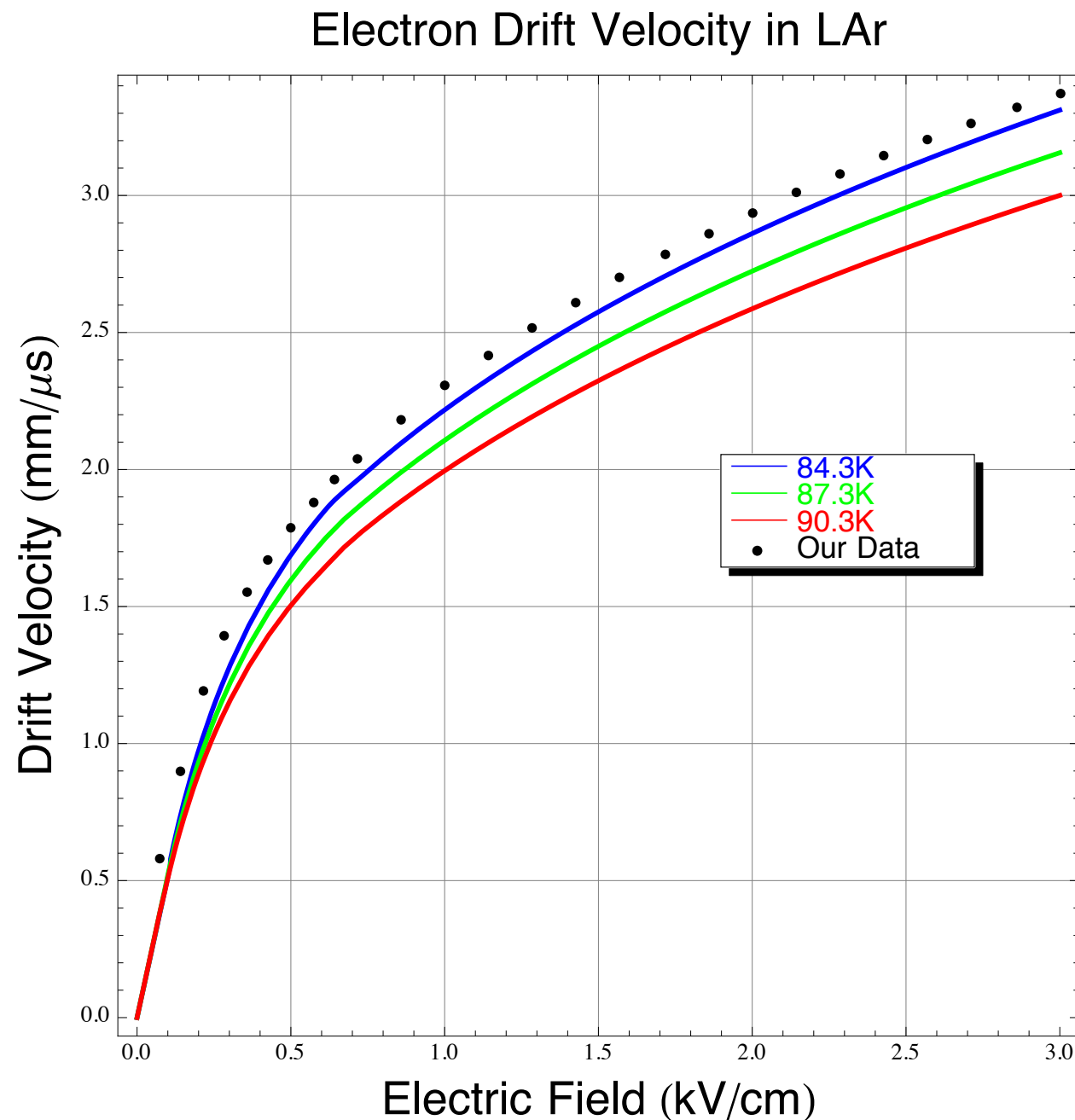
# Results Comparison

1. The electron signal was measured from 0 field up to 3.0kV/cm with constant laser power.
2. The signal of the slower peak was measured with heater on.
3. Two sets of signal illustrate very different timing, i.e. drift velocity



# Drift and Diffusion

1. The drift velocity from the peaks with heating is more reasonable.
2. Will double check the electron energy results.



# The electron temperature of the faster peak

